UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/565,820	PARK ET AL.
	Examiner	Art Unit	
	FRANK DONADO	4173	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>07 September 2006</u>.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-17</u> is/are pending in the application.
   4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) <u>1-17</u> is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on <u>01 September 2006</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.
   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a)☒ All   b)☐ Some * c)☐ None of:
   1.☐ Certified copies of the priority documents have been received.
   2.☐ Certified copies of the priority documents have been received in Application No. _____.
   3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date <u>09/07/2006</u>.
4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____ .

DETAILED ACTION

Priority

1.   Acknowledgment is made of applicant's claim for foreign priority under 35

U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 10-2003-

0050597, filed on 07/23/03.

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

3.   Claim 1 recites the limitation "the first communication type signal". There is

insufficient antecedent basis for this limitation in the claim.

4.   Claims 8 and 17 recite the limitation "the 2.3 GHz portable internet service".

There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

5.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public
> use or on sale in this country, more than one year prior to the date of application for patent in the United
> States.

6.   Claims 1-7 and 9-16 are rejected under 35 U.S.C. 102(b) as being anticipated by

Volpi, et al. **(US PG Publication 2004/0174900).** Henceforth, Volpi, et al, will be

referred to as Volpi.

Regarding claim 1, Volpi teaches in a device for repeating a wireless internet access of

a user terminal between a wireless internet access network and the user terminal, a

wireless internet access repeater **(A mesh network is an internet network, and a**

wireless terminal can gain access to it in a point-to-multipoint (PTM) subsystem

through a wireless repeater, Figure 7A, Paragraph 48, lines 10-14 and Paragraph

46, lines 11-14) comprising: a first transmit and receive unit for transmitting/receiving

signals to/from the wireless internet access network **(A mesh access point**

subsystem converts signals between a PTM network and a mesh network

(internet), in a bi-directional wireless repeater, Paragraph 46, lines 3-6, Paragraph

47, lines 1-2 and Figures 2 and 7A) by a first communication type **(mesh protocol,**

Paragraph 45, lines 4-6); a second transmit and receive unit for transmitting/receiving

signals to/from the user terminal **(A PTM subsystem converts signals between the**

mesh network and PTM network out to a user terminal in a bi-directional wireless

repeater, Paragraph 46, lines 6-9 and Paragraph 47, lines 1-2) by a second

communication type **(PTM protocol, Paragraph lines 9-11)**; and a media access

control (MAC) conversion manager for processing data included in the first

communication type signal input by the first transmit and receive unit into a second

communication type format **(A signal is converted by a mesh access point**

subsystem from a mesh network protocol, 1st communication type to a PTM

protocol, 2nd communication type, and the Point to Multipoint network employs

Media Access Control, Paragraph 8, lines 7-10), transmitting the second

communication type format data to the second transmit and receive unit (The mesh

access point subsystem transmits the signal to the 2nd transmit/receive unit,

which is a PTM access point subsystem, after conversion, Figure 7A), processing

data included in the second communication type signal input by the second transmit

and receive unit into a first communication type format (A signal is converted by a

PTM subsystem from a mesh network protocol, 2nd communication type to a

mesh network protocol, 1st communication type, Paragraph 8, lines 10-14), and

transmitting the first communication type format data to the first transmit and receive

unit (The PTM subsystem transmits the signal to the 1st transmit/receive unit,

which is a mesh access point subsystem, after conversion, Figure 7A).

        Regarding claim 2, Volpi teaches the wireless internet access repeater of claim

1, further comprising an operation controller for controlling the MAC conversion

manager and controlling transmitting and receiving repetition of the signals which are

transmitted according to the first and second communication types (A wireless

repeater PTM subsystem that employs Media Access Control serves as a

control mechanism for different forms of media during the repeater process,

Paragraph 8, lines 4-14 and 18-21).

Regarding claim 3, Volpi teaches the wireless internet access repeater of claim

1, wherein the MAC conversion manager comprises: a frame monitor for managing

order information of the same data frame according to header information of the data

frame included in the signals received by the first or second transmit and receive unit

(A 1st header is changed to a 2nd header while transmitting data to/from a 1st

network to a 2nd network, Paragraph 73, lines 1-9); a frame processor for

converting the data frame into a format which follows a MAC structure corresponding to

a desired communication type **(A packet of data is formatted to fit dissimilar**

networks in a wireless repeater, Paragraph 73, lines 1-9); a channel controller for

controlling a modulation rate and a bit rate of the transmitted data frame according to

the communication type **(The wireless repeater employs a GPRS (General Packet**

Radio Service) to control the bit and modulation rate in transmitting stored data

between the dissimilar networks, Paragraph 74, lines 1-7); and a standby manager

for controlling data rates according to the established modulation rate and the bit rate

(Traffic control is handled by the PTM subsystem in Figure 7A by employing a

transmission control protocol and is contained within the wireless repeater,

Paragraph 48, lines 10-14).

Regarding claim 4, Volpi teaches the wireless internet access repeater of claim

3, wherein the MAC conversion manager further comprises: a channel allocator for

allocating a channel to the data frame included in the signal received through the

second transmit and receive unit **(A channel sense and select module, 1070 in**

Figure 10B, determines which channel to be used in a wireless repeater transmitting the data frame to a 2nd transmit/receive unit, in this case the PTM network transceiver 1065 of Figure 10B, Paragraph 62, lines 1-5); and a channel manager for managing channel allocation information and channel states **(A lookup table is employed for performing the channel selection, Paragraph 62, lines 5-6)**.

Regarding claim 5, Volpi teaches the wireless internet access repeater of claim 1, further comprising: a first MAC processor for repeating transmission of the data frame between the MAC conversion manager and the first transmit and receive unit; and a second MAC processor for repeating transmission of the data frame between the MAC conversion manager and the second transmit and receive unit **(Filters are employed for a 1st and 2nd network, 710 and 735 of Figure 7A, that filter out/kick back unwanted frequencies, requiring repetition of signals, Paragraph 47, lines 7-11 and 22-26)**.

Regarding claim 6, Volpi teaches the wireless internet access repeater of claim 1, wherein the user terminal is operated in a first mode for transmitting and receiving signals in a first frequency band according to the first communication type, and a second mode for transmitting and receiving signals in a second frequency band according to the second communication type **(Bandwidth is higher for a 1st network with a 1st communication type than for a 2nd network with a 2nd communication type, Paragraph 46, lines 14-17)**.

Regarding claim 7, Volpi teaches the wireless internet access repeater of claim

1, wherein the first communication type is a wireless internet access service type **(The**

mesh network that can be the internet, Figures 2 and 7A), and the second

communication type is a wireless local area network service type **(The wireless router**

access points allow the wireless local area network service to users, Paragraph

36, lines 5-14).

Regarding claim 9, Volpi teaches the wireless internet access repeater of claim

1, wherein the wireless Internet access repeater is located in a blanket area

(Paragraph 42, lines 1-4).

Regarding claim 10, Volpi teaches in a method for repeating a wireless internet

access of a user terminal between a wireless internet access network and the user

terminal, a wireless Internet access repetition method **(The internet is the mesh**

network, and a wireless terminal can gain access to it in a point-to-multipoint

(PTM) subsystem through a wireless repeater, Figure 7A, Paragraph 48, lines 10-

14 and Paragraph 46, lines 11-14) comprising: (a) receiving a signal in a first

frequency band following a first communication type and being transmitted from the

wireless internet access network **(The mesh (internet) access point subsystem**

receives signals from the wireless internet network in the mesh protocol format,

Paragraph 46, lines 3-6, and Figure 7A); (b) converting the received signal into a

second communication type format **(A PTM subsystem converts signals from the mesh protocol to the PTM protocol, Paragraph 46, lines 6-9)**; (c) processing the converted signal into a signal in a second frequency band following the second communication type **(A signal is converted by a mesh access point subsystem from a mesh network protocol, 1st communication type, to a PTM protocol, 2nd communication type, and bandwidth is higher for the mesh network than for the PTM network, Paragraph 8, lines 7-10 and Paragraph 46, lines 14-17)**, and transmitting the processed signal to the user terminal **(The PTM subsystem transmits the signal to terminal users, Figure 7A)**; (d) receiving a signal in a second frequency band following the second communication type and being transmitted from the user terminal **(The PTM access point subsystem receives the signal in a frequency that is lower than that of the mesh network, Figure 7A and Paragraph 46, lines 14-17)**; (e) converting the received signal into the first communication type format **(Paragraph 46, lines 3-6)**; and (f) processing the converted signal into a signal in the first frequency band according to the first communication type **(The converted signal is processed and the frequency is changed to a higher frequency specific to the mesh network, Paragraph 8, lines 10-14)**, and transmitting the signal to the wireless internet access network **(The PTM subsystem transmits the converted signal to the mesh/ wireless internet network, Figure 7A)**.

Regarding claim 11, Volpi teaches the wireless internet access repetition method of claim 10, wherein the first communication type is a wireless internet access service

type (**The mesh network that can be the internet, Paragraph 48, lines 10-14,**

Paragraph 46, lines 11-14 and Figure 7A), and the second communication type is a

wireless local area network service type (**The wireless router access points allow**

the wireless local area network service to users, Paragraph 36, lines 5-14).

Regarding claim 12, Volpi teaches the wireless internet access repetition method

of claim 10, wherein (b) comprises: analyzing header information of a data frame

included in the first communication type signal (**A 1st header is changed to a 2nd**

header while transmitting data to/from a 1st network to a 2nd network, Paragraph

73, lines 1-9), and processing the same data frames in a predetermined order;

converting the data frame into a format which corresponds to a MAC structure following

the second communication type (**A packet of data is formatted to fit dissimilar**

networks in a wireless repeater that allows various forms of media, Paragraph

73, lines 1-9), and storing it in a temporary storage unit (**The wireless repeater**

employs a GPRS, General Packet Radio service, that stores formatted data,

Paragraph 74, lines 1-7); and controlling a modulation rate and a bit rate and

outputting the stored data frame according to the established modulation rate and the

bit rate in order to transmit the data frame as a second communication type signal (**The**

wireless repeater employs the (GPRS) to control the bit and modulation rate in

transmitting stored data between the dissimilar networks, Paragraph 74, lines 1-

7).

Regarding claim 13, Volpi teaches the wireless internet access repetition method

of claim 10, wherein (e) comprises: analyzing header information of a data frame

included in the second communication type signal, and processing the same data

frames in a predetermined order **(A 1st header is changed to a 1st header while**

transmitting data to/from a 2nd network to a 1st network, Paragraph 73, lines 1-9);

converting the data frame into a format which corresponds to a MAC structure following

the first communication type **(A packet of data is formatted to fit dissimilar**

networks in a wireless repeater that allows various forms of media, Paragraph

73, lines 1-9), and storing it in a temporary storage unit **(GPRS allows for storage of**

data packet information, Paragraph 74, lines 1-7); allocating a channel for the data

frame **(The wireless repeater employs GPRS, and this uses channel allocation,**

Paragraph 74, lines 1-7); and controlling a modulation rate and a bit rate, controlling

a data rate according to a difference between the established modulation rate and the

bit rate **(In GPRS, transfer speed depends on the channel coding used, Paragraph**

74, lines 1-7) and outputting the data frame to the allocated channel in order to

transmit the data frame as a first communication type signal **(A data frame is**

processed and output to the appropriate channel in the appropriate

communication type in the wireless repeater with 1st and 2nd communication

type signals, using GPRS, Paragraph 73, lines 1-4 and Paragraph 74, lines 1-7).

Regarding claim 14, Volpi teaches the wireless internet access repetition method

of claim 10, wherein the wireless internet access repetition method repeats the

wireless internet access of the user terminal located in a blanket area **(The wireless repeater employs GPRS in a system that includes visited network, such as the internet, and home networks, where the home networks define users over a coverage area, Paragraph 74, lines 1-7 and Figure 11)**.

Regarding claim 15, Volpi teaches in a method for a user terminal to access a wireless internet access network, a wireless internet access method comprising: (a) operating the user terminal in a first mode to be accessed to the wireless internet access network according to a first communication type **(A mobile terminal is used to access the internet in a system that employs a GPRS tunneling service and dissimilar communication types, Paragraph 70, lines 15-20, Paragraph 72, lines 8-11 and Figure 11)**; (b) determining whether the user terminal is located in the blanket area depending on a received state of the signal transmitted according to the first communication type **(A roaming function is employed in the system, Paragraph 70, lines 1-5)**; (c) searching for a repeater which supports mutual switching between the first and second communication types when the user terminal is found in the blanket area **(Paragraph 72, lines 1-5)**; and (d) operating the user terminal in a second mode to be accessed to the wireless internet access network through the repeater according to the second communication type **(A mobile terminal is used to access the internet in a system that employs a GPRS tunneling service and dissimilar communication types, Paragraph 70, lines 15-20, Paragraph 72, lines 8-11 and Figure 11)**.

Regarding claim 16, Volpi teaches the wireless internet access method of claim

15, wherein the first communication type is a wireless internet access service type, and

the second communication type is a wireless local area network service type **(GPRS**

supports communication between the internet and a wireless local area network,

and this is what the system uses, Paragraph 74, lines 1-7).

Claim Rejections - 35 USC § 103

7.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

8.   Claims 8 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Volpi, in view of Elbatt, et al **(US PG Publication 2005/0152318).** Henceforth, Elbatt, et

al, will be referred to as Elbatt.

Regarding claims 8 and 17, Volpi teaches the limitations of claim 7 and 16,

respectively. Volpi fails to teach the first communication type is a communication type

which follows the 2.3 GHz portable internet service.   Elbatt teaches a wireless

communications system that transmits signals over 2.3 GHz **(Paragraph 25, lines 14-**

19). It would have been obvious to one of ordinary skill in the art at the time of the

invention to modify the invention of Volpi to use 2.3 GHz as the lower frequency as a

matter of design choice.

Conclusion

9.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

US Patent No. 7,233,602 refers to a coordination architecture for wireless

communication devices using multiple protocols.

US PG Publication 2004/0196819 refers to a method for transmitting frames in a

wireless local area network.

US PG Publication 2004/0105416 refers to an apparatus for controlling load

balance of multi-access points in a wireless lan system and method thereof.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to FRANK DONADO whose telephone number is (571)

270-5361. The examiner can normally be reached on Monday-Thursday, 7:30 am -5

pm, alternate Fridays, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Benny Tieu can be reached on 571-272-7490. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Frank Donado
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/Lewis G. West/

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